

PUBLIC PARTICIPATION RESPONSIVENESS SUMMARY

FOR

RULEMAKING ON CHAPTER 61

Copper Biotic Ligand Model Criteria (BLM) Criteria

DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL SERVICES DIVISION

November 30, 2016

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RESPONSIVENESS SUMMARY

INTRODUCTION

This is a summary of and response to the comments received in response to amendments proposed for 567 IAC Chapter 61 and *Implementation Procedure for Biotic Ligand Model-Based Copper Criteria*, adopted therein by reference. The proposed amendments were published as a Notice of Intended Action (NOIA) in the Iowa Administrative Bulletin on October 12, 2016 as **ARC 2757C**.

The following amendments are proposed.

ITEM 1. Amend subrule 61.3(3), TABLE 1, entry for “Copper,” as follows:

Copper	Chronic ⁽ⁿ⁾	20	—	16.9 ⁽ⁱ⁾	16.9 ⁽ⁱ⁾	16.9 ⁽ⁱ⁾	10	—	—
	Acute ⁽ⁿ⁾	30	—	26.9 ⁽ⁱ⁾	26.9 ⁽ⁱ⁾	26.9 ⁽ⁱ⁾	20	—	—
	Human Health + — Fish	—	—	—	—	—	—	—	1000 ^(e)
	Human Health + — F & W	—	—	—	—	—	—	—	1300 ^(f)

ITEM 2. Adopt the following new footnote (n) in subrule 61.3(3):

- (n) The copper criteria in Table 1 can be adjusted by a Water-Effect Ratio (WER). The WER factor is equal to 1.0 unless an approved WER study has been conducted by a permittee for a specific point source. The WER study shall be conducted in accordance with the “Interim Guidance on Determination and Use of Water-Effect Ratios for Metals (EPA-823-B-94-001), February 22, 1994”, or upon approval by the department, the “Streamlined Water-Effect Ratio Procedure for Discharges of Copper (EPA-822-R-01-005), March 2001”, which are hereby adopted by reference.

The copper Biotic Ligand Model (BLM) may be used as an alternative to the copper criteria in Table 1. The copper BLM is found in the document “Aquatic Life Ambient Freshwater Quality Criteria - Copper 2007 Revision (EPA-822-R-07-001), February 2007,” which is hereby adopted by reference.

ITEM 3. Adopt the following new subrule 61.3(10):

61.3(10) Implementation Procedure for Biotic Ligand Model-Based Copper Criteria. The department hereby incorporates by reference “Implementation Procedure for Biotic Ligand Model-Based Copper Criteria,” [effective date]. This document may be obtained on the department’s Web site.

Public hearings were held on November 1st, 2nd and 3rd, 2016. Written comments were accepted through November 4, 2016. A total of 4 persons or organizations provided oral or written comments on the proposed amendments during the public comment period. The responsiveness summary addresses all of the comments received. The commentators’ names are listed in the Appendix.

ISSUE: Comments in Support of the Proposed Rule

Summary of Comments:

A number of commenters expressed support for the proposed rule. One commenter expressed the desire for improved clarity on the implementation procedure. No commenters opposed the proposed rule. The specific comments are first summarized; IDNR response to each comment follows. Please note that the revisions based on the comments are to the implementation procedure only. No changes are made to the proposed rule itself.

Specific Comments:

Comment: Site Definition. We suggest clarifying that the same site boundary applies to both chronic and acute site-specific standards. We also suggest specifying how mixing zones are incorporated into assigning site boundaries.

IDNR Response: The following statement is added to the Site Definition section under bullet (2):

“The site boundary determination needs to consider both the acute and chronic effects and applies to both criteria.”

Please note that the consideration of mixing zones is included in Section 4.1.

Comment: Work Plan. The work plan elements should provide the state’s expectations on analytical protocols, such as analytical resolution requirements, maximum detection limits and guidance on which parameters should be measured in the field and which should be measured by a laboratory. Sample collection protocols must describe filtration requirements for copper samples.

IDNR Response: Item 14, in Section 5.0 QA/QC, states that all parameters must be analyzed using approved methods specified in 40 CFR Part 136. Item 4 also specifies that all analyses will be completed using IDNR-approved methods.

Table 1 in Section 5.0 QA/QC specifies the minimum number of significant figures as part of the analytical resolution requirements. Method Detection Limits (MDLs) for each parameter will likely be site-specific. Thus, item 11 states that detection limits for each parameter must be sufficiently low to be used with the model. Item 13 specifies that all chemical constituents should be measured as dissolved concentrations and the samples should be filtered in the field.

Comment: Data Collection with Copper. Some of the BLM input parameters may fluctuate diurnally (e.g. temperature and sulfate). This section should provide guidance regarding time of day for sample collection, and clarify the required number of samples if seasonal criteria are sought. Is the minimum sampling requirement 24 sampling events in the season of interest?

IDNR Response: Temperature may fluctuate diurnally but is not a sensitive parameter to copper BLM criteria. The pH in Iowa’s surface water is well buffered by carbonate minerals in the soil and bedrock and does not show the large diurnal fluctuations that can happen in the western US where igneous (basalt and granitic) bedrocks can dominate. The most sensitive BLM model parameters (DOC and pH) are not expected to change significantly on a diurnal basis. In addition, the work plan requires temporal sampling collection protocols. Thus, time of day for sample collection is best addressed in the work plan.

The ambient water chemistry (IDNR and USGS monitoring data) data analysis for the two most sensitive parameters DOC and pH does not show a significant seasonal variability (DOC monthly median values range from 3.1 mg/L to 4.62 mg/L from January to December; pH monthly median values range from 8.0 to 8.3 s.u. from January to December). The site-specific application of the copper BLM criteria will most frequently be applied to either effluent-created or effluent-dominated waterbodies, where the variability of

the water chemistry are expected to be even lower. The purpose of the implementation procedure is to develop copper BLM criteria that are protective of the aquatic life use for all seasons. Section 7.0 Criteria Derivation addresses data variability and seasonality in detail. The use of FMB method and the 10th percentile will ensure that the final copper BLM criteria are protective of all seasons without developing seasonal criteria. In rare cases, when seasonal criteria have to be developed, the data requirements are best addressed on a case by case basis.

Comment: The Data Collection with Copper section should describe the fraction of copper to be collected. For dissolved samples, the filtration pore size should be specified.

IDNR Response: Please see item 13 in Section 5.0 QA/QC, which specifies that all chemical constituents should be measured as dissolved concentration. Also, item 14 requires that all parameters must be analyzed using approved methods specified in 40 CFR Part 136, which specifies that for the determination of the dissolved elements, the sample must be filtered through a 0.45 µm pore diameter membrane filter. Thus, the issues in the comments are already addressed in the current implementation procedure. There is no revision to the document needed based on this comment.

Comment: The QA/QC section should clarify whether the 10% field and laboratory replicate samples is required for each sampling event, or for the overall data collection effort.

IDNR Response: The QA/QC section is revised to incorporate the comments as follows:

5. *10% of field sampling collection events (rounded up to the next whole number) will be replicated and analyzed, on an annual basis, to document that samples are representative of conditions in the stream. Replicate events should be randomly selected prior to initial sample collection.*
6. *10% of laboratory samples analyzed (including field replicates and rounded up to the next whole number) will be replicated for each analyte in the copper BLM, on an annual basis, to document precision within the laboratory. Replicate samples for each analyte should be randomly selected prior to initial sample collection.*

Comment: In Section 7, “significant spatial differences” should be defined in greater detail. This section should also specify on data treatment rules to ensure that the criteria are protective of the entire site for waterbodies with high spatial variability among sample locations.

IDNR Response: The site-specific application of the copper BLM criteria will most frequently be applied to either effluent-created or effluent-dominated waterbodies, where the variability of the water chemistry should be relatively low. As stated in Section 7, the criteria selected must be protective of the entire Site. Thus, any scientifically defensible approaches are acceptable as long as the derived criteria are protective of the entire site. No revision is necessary based on this comment.

Comment: Section 8 should provide more information on when the site-specific BLM criteria will be acceptable and when they are not.

IDNR Response: The first sentence of Section 8 is revised as follows:

“If adequate site-specific water chemistry data that meet the requirements specified in this document are collected, the copper BLM criteria will be developed and used in wasteload allocations to derive water quality based limits.”

Comment: Table 1 should clarify the meaning of the “Lower bound” and “Upper bound”.

IDNR Response: The Lower bound and Upper bound reflect the conditions in the toxicity tests supporting the recommended copper criteria development. These ranges reflect data available at time of model calibration. To avoid confusion, the two columns “Lower bound” and “Upper bound” are deleted from the document.

Comment: We would suggest for permit holders considering the BLM, that a sampling location upgradient of the discharge also be analyzed for the BLM-required parameters. This would help characterize instream water quality conditions and ambient copper concentrations (if an FMB is being considered) in the receiving water and how the discharge may potentially effect water quality and thus copper bioavailability, downstream.

IDNR Response: Effluent limits for point source discharges should be protective of all downstream uses. Thus, copper bioavailability downstream is the main focus in deriving site-specific copper BLM based criteria. Ambient copper concentration and water quality conditions are addressed in ambient monitoring programs.

APPENDIX

Commenters

The following is a list of individuals and organizations that commented on the proposed rule during the public comment period. The commenters are listed in no particular order.

Winnie Gleason, P.E., FOX Engineering Associates, Inc.

Robert W. Gensemer, Ph.D., Senior Ecotoxicologist, GEI Consultants, Inc., Copper Development Association Inc.

Jeffrey T. Miller, President and Executive Director, Treated Wood Council

Jennifer Sampson, Senior Managing Scientist, Integral Consulting Inc.